

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date:

Region: Asheville Regional Office
County: Mitchell
NC Facility ID: 6100088
Inspector's Name: Mike Parkin
Date of Last Inspection: 08/19/2015
Compliance Code: 3 / Compliance - inspection

Facility Data Applicant (Facility's Name): BRP US, Inc. Facility Address: BRP US, Inc. 1211 Greenwood Road Spruce Pine, NC 28777 SIC: 3365 / Aluminum Foundries NAICS: 331524 / Aluminum Foundries (except Die-Casting) Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V				Permit Applicability (this application only) SIP: 02D .0515, 02D .0521, 02D .1806, 02Q .0711 NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: N/A NC Toxics: 02Q .0711 112(r): N/A Other: N/A			
Contact Data				Application Data			
Facility Contact Bernice Wilson EH & S Coordinator (828) 766-1185 1211 Greenwood Road Spruce Pine, NC 28777	Authorized Contact Stephen Floyd Plant Manager (828) 766-1100 1211 Greenwood Road Spruce Pine, NC 28777	Technical Contact Bernice Wilson EH & S Coordinator (828) 766-1185 1211 Greenwood Road Spruce Pine, NC 28777	Application Number: 6100088.15A Date Received: 11/30/2015 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 05331/T23 Existing Permit Issue Date: 04/26/2013 Existing Permit Expiration Date: 08/31/2016				
Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	0.0500	9.71	21.64	12.40	6.77	7.10	4.34 [Styrene]
2013	0.0500	8.04	17.81	10.83	6.33	6.33	3.85 [Styrene]
2012	0.0600	11.28	24.13	14.63	6.91	8.37	5.28 [Styrene]
2011	0.0500	9.87	20.82	12.86	7.80	6.95	4.79 [Styrene]
2010	0.0500	8.56	15.22	10.22	3.53	5.02	3.40 [Styrene]
Review Engineer: Lori Ann Phillips Review Engineer's Signature: Date:					Comments / Recommendations: Issue: 05331/T24 Permit Issue Date: Permit Expiration Date:		

1. Purpose of Application:

BRP US Inc. (BRP) has submitted an air permit renewal application. The application was received on November 30, 2015 at the Asheville Regional Office and on December 4, 2015 at the RCO. BRP is located at 1211 Greenwood Road in Spruce Pine, Mitchell County. In addition to renewing the permit, the facility has submitted updated information regarding the 502(b)(10) request that was received on July 19, 2013. The 502(b)(10) request has been consolidated with this permit renewal and will be addressed in this permit review. The 502(b)(10) request included the addition of a new piece of equipment, a sand storage silo (ES-10a), to the permitted equipment list. Additionally, this permit renewal will remove I-ES-49 from the insignificant activities list, add an insignificant fire pump (I-FP-1), and make additional updates to the insignificant activities list.

2. Facility Description:

BRP operates a lost foam aluminum casting facility where it casts aluminum parts for a variety of products. Part shapes are first manufactured in the form of a polystyrene pattern. The polystyrene pattern is coated with clay-like minerals and placed in a sand matrix contained in a steel flask. Molten aluminum is poured onto a polystyrene neck and proceeds to burn out the polystyrene neck and pattern leaving the aluminum casting in the form of the polystyrene pattern. The majority of emissions from the facility occur from the burn-out of the polystyrene. BRP uses natural gas as a primary fuel and propane as a backup fuel.

3. Application Chronology:

November 30, 2015	Received permit application at the Asheville Regional Office.
December 4, 2015	Received permit renewal application at the Raleigh Central Office. Application package included all necessary forms, calculations for changes to the 502(b)(10) request, and an authorized signature. A note was included from Vice President and General Manager, Alain Villmure, giving Stephen Floyd, Plant Manager, authorized signature authority.
April 5, 2016	Emailed Bernice Wilson, EHS Coordinator, to let her know that the draft permit would be coming in the following weeks.
April 15, 2016	Emailed Bernice Wilson to inquire about when the fire pump, I-FP-1, was constructed and put into operation at the facility.
April 25, 2016	Received email from Bernice Wilson indicating that the fire pump was constructed in 1984 and put into service in 1985.

April 26, 2016	Sent the draft permit to both Bernice Wilson and Judy Hoff, ERM, for review. Also sent a copy to the Asheville Region Compliance Coordinator, Mike Parkin, for his review.
April 27, 2016	Received comments back from the Region.
April 29, 2016	Received comments on the draft permit from Judy Hoff.
May 2, 2016	Emailed Rahul Thacker and received a response regarding an explanation of the dates for initial compliance for ES-44 in the MACT Subpart DDDDD permit stipulation. Email attached. The different dates were for the 112(j) and 112(d) standards. The initial compliance date for the 112(d) standard should be changed from May 23, 2019 to May 20, 2019 as this was a previous error.
May 3, 2016	Sent DAQ responses to comments to Ms. Hoff and Ms. Wilson.
May 10, 2016	Forwarded revised draft permit to the facility. Inquired as to whether or not boiler ES-37 had an oxygen trim system. Ms. Hoff included in her comments on the draft permit that the boiler had an oxygen trim system and that the tune-up frequency and associated items for this unit be changed to every 5 years. I requested a boiler spec sheet so that I had evidence of the trim system before changing the permit.
May 10, 2016	Received email response from Ms. Wilson indicating that ES-37 does not have an oxygen trim system installed. Therefore, the MACT subpart 5D language shall remain unchanged.
May 17, 2016	Received final comments on the draft permit. See email.

4. New Equipment/Changes in Emissions and Regulatory Review:

BRP wishes to renew their current air permit, 05331T23, as well as update the insignificant activities list and add a previous 502(b)(10) sand storage silo (ES-10a) to the permit.

A. Add Sand Storage Silo via 502(b)(10) to Permitted Equipment List

On July 19, 2013, a 502(b)(10) notification was received by DAQ. This notification was to construct a new sand storage silo to enable the facility to mix reclaimed sand with used and new sand for better process control. The Sand Storage Silo, ES-10a, has been constructed and is located adjacent to the Fresh Sand Bin – Cast Line No. 1 (ES-10). ES-10a has a capacity of 960 cubic feet of material and a maximum annual throughput of 2,500 tons of material. ES-10a allows for BRP to reduce the quantity of sand that is disposed of due to lack of storage capacity. The addition of this emission

source did not result in an increase in capacity or production. ES-10a is connected to the same bagfilter, CD-1, that controls emissions from ES-10.

According to information provided in the permit renewal application, approximately 25% of reclaimed sand is routed through ES-10a and some reclaimed sand is still disposed of. The aluminum pour rate for Cast Line No. 1 is limited to 20,000,000 pounds of aluminum per year in the current permit, and that pour rate shall not change. No other throughputs or emissions from other sources either upstream or downstream are affected by the addition of ES-10a to BRP's facility.

There are only particulate emissions associated with ES-10a and they are shown in the table below.

Pollutant	Potential Emissions before control (tpy)	Potential Emissions after bagfilter control (tpy)
TSP	52.0	0.52
PM-10	52.0	0.52
PM-2.5	52.0	0.52

ES-10a shall be added to the permitted equipment list. It is subject to the following regulations: 2D .0515, 2D. 0521, and 2D .1806.

2D .0515 – Particulates from Miscellaneous Industrial Processes - The particulate matter emissions from ES-10a shall be not exceed the allowable emissions rate as calculated by the following equation:

$$E = 4.10 \times P^{0.67} \quad \text{Where } E = \text{allowable emission rate in pounds per hour} \\ P = \text{process weight in tons per hour}$$

where $P = 1,188 \text{ pounds per hour} = 0.594 \text{ tons per hour}$

$$E = 4.10 \times (0.594)^{0.67} = 2.89 \text{ lbs/hr}$$

According to the permit application calculations, the post control PM emission rate for ES-10a is 2.08 tons per year, or 0.47 pounds per hour. This emission rate is less than the allowable emission rate calculated above; therefore, compliance is expected. The facility shall maintain records of material throughput and shall make these records available to DAQ upon request.

2D .0521 – Control of Visible Emissions – The visible emissions from ES-10a shall not be more than 20 percent opacity when averaged over a six-minute period. Compliance is expected and will be verified during annual facility inspections.

2D .1806 – Control and Prohibition of Odorous Emissions – The facility shall not be operated in a manner which allows odorous emissions from causing or contributing to

objectionable odors beyond the facility's boundary. Compliance is expected and will be verified during facility inspections.

B. Updates to the Insignificant Activities List

BRP would like to add the following two pieces of equipment to the Insignificant Activities attachment:

- I-ES-43 - Block grind/leak test
- I-FP-1 - One diesel-fired fire pump (177 horsepower)

Both sources are exempt from permitting in accordance with 15A NCAC 02Q .0503(8). I-ES-43 is exempt from permitting due to the particulate emissions from this source being vented into the building; no emissions reach the atmosphere. I-FP-1 is exempt from permitting due to potential criteria pollutant emissions being less than 5 tons per year each and a thousand pounds of HAPs.

Additionally, BRP would like to delete the following insignificant equipment from the permit: I-ES-49 (One direct natural gas/propane-fired paint burn-off oven). This equipment will be removed from the Insignificant Activities attachment.

5. Changes to Permit:

- Added ES-10a – Sand Storage Silo to the permitted equipment list under Casting Line No. 1.
- Removed I-ES-49 from the Insignificant Activities attachment.
- Added I-ES-43 and I-FP-1 to the Insignificant Activities attachment.
- Updated the TAP emission rate for 1,3-Butadiene in the 2Q .0711 table on page 30 of the permit, as the emission rate for this pollutant was incorrect.
- Moved EG-1 to the Insignificant Activities list as this source is exempt from permitting due to 2Q .0503(8). It is now listed as I-EG-1. MACT Subpart ZZZZ shall still apply to this source.
- Removed all associated permit stipulations of EG-1 from the permit as this source is not exempt from permitting.
- Updated the wording for the 112(j) stipulation to clarify the difference between the CAA §112(j) standard and CAA §112(d) standard initial compliance dates, as they apply to ES-44.
- Corrected the listing for sources ES-21-1 and ES-21-2 from ES-21.1 and ES-21.2 to match what is shown in the permitted equipment list.
- Removed I-ES-27, I-ES-41, and I-ES-42 from the Insignificant Activities attachment as these sources vent internal to the building.

6. NSPS, NESHAPS, MACT, PSD, and Attainment Status:

This facility is a PSD minor source located in Mitchell County, which is in attainment for PM₁₀ and ozone.

Boiler ES-37 is subject to NSPS Subpart Dc and MACT Subpart DDDDD. Boiler ES-44 is subject to Case-by-Case MACT 112(j), paint booth and oven ES-47 is subject to MACT Subpart MMMM, and emergency generator I-EG-1 is subject to MACT Subpart ZZZZ.

The fire pump, I-FP-1, being added to the Insignificant Activities attachment is also subject to MACT Subpart ZZZZ; however, NSPS Subpart IIII does not apply as the fire pump is considered existing equipment; it was constructed at the facility in 1984 and put into service in 1985.

7. Facility Wide Air Toxics:

The addition of ES-10a to the permit does not create any additional toxic emissions from the facility. The addition of the emergency fire pump, I-FP-1, to the insignificant activities list does include the following air toxics: acetaldehyde, acrolein, arsenic, benzene, benzo(a)pyrene, beryllium, 1,3-butadiene, cadmium, formaldehyde, manganese, mercury, nickel, toluene, and xylene. BRP's current permit has emission limits for benzene based on modeling for the sources that emit benzene. In April of 2013, a replacement boiler was added to the facility. This boiler, ES-37, had higher benzene potential emissions than the previous boiler; therefore, the facility-wide modeling for benzene was updated. The April 16, 2013 modeling results showed that the maximum predicted benzene impact had increased from 70% to 76% of the annual AAL due to the addition of the replacement boiler which had a maximum annual benzene emission rate of 0.368 pounds per year. The facility's fire pump, I-FP-1 has a maximum calculated benzene emission rate, using AP-42 emission factors, of 0.0114 pounds per year. This is considerably less than boiler (ES-37) that was modeled in 2013. Therefore, it can be reasonably assessed that the addition of I-FP-1 will not increase facility-wide benzene emissions over the NC benzene AAL and no unsafe health risk would be suggested.

8. Compliance Status:

The facility was in compliance during the most recent inspection conducted on August 19, 2015 by Mike Parkin.

9. Other Considerations:

- A P.E. seal is NOT required for this application.
- A zoning consistency determination is NOT required for this application.
- This facility is not subject to the 112(r) program as it does not store any of the listed chemicals in quantities above the program thresholds.

10. Public Notice Review:

A 30-day public notice and 45-day EPA review period is required for this permit renewal.

The 30-day public notice period was from XX through XX.

The EPA 45-day review period was from XX through XX.

11. Conclusions, Comments, and Recommendations:

This air permit application for BRP US Inc, located at 1211 Greenwood Road in Spruce Pine, Mitchell County, has been reviewed by DAQ to determine compliance with all procedures and requirements. The Asheville Regional Office has made comments on the draft permit. Continued compliance with this air permit is expected. Recommend issuance of revised air permit No. 05331T24.